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# WILDLIFE

**T**HE WASHINGTON DEPARTMENT OF Fish and Wildlife (WDFW) has stewardship responsibilities for nearly 600 wildlife species, more than 50 of which can be hunted during seasons established by the Washington Fish and Wildlife Commission. From deer and elk to spotted owls and bald eagles, each of these species presented its own management challenges during the 1999-01 Biennium.

Citizens' initiatives, legislative measures and legal actions set the stage for three of the most high-profile wildlife issues during the biennium: tribal hunting rights, cougar management and fur trapping. All three issues required WDFW and the Commission to develop new policies consistent with resource needs and changing legal requirements.

- **Tribal Hunting:** In the case of *State of Washington v. Buchanan*, the state Supreme Court reaffirmed treaty hunting rights on open and unclaimed lands within each tribe's aboriginal hunting grounds. Under the court's June 1999 ruling, aboriginal hunting grounds include areas ceded to the United States government by the tribes and other lands that a tribe can demonstrate it occupied and used for hunting over an extended period of time. In most areas where disagreements over the status of lands occurred during the 1999-01 Biennium, interim agreements were reached by the tribes, WDFW and county prosecutors. One example was the south Puget Sound region, where a limited availability of elk and varying interpretations of the treaty language had led the state and the tribes of the Medicine Creek Treaty to struggle with the location of the treaty southern boundary. WDFW joined with the affected county prosecutors and the Medicine Creek treaty tribes and developed a process that utilized an independent third party to establish the southern boundary for enforcing hunting activities. The findings of the third party determination have since been used by the tribes, WDFW and the affected county prosecutors to set rules for tribal hunting.



*Migrating trumpeter swans attract thousands of bird watchers to the Skagit Wildlife Area every year.*

- **Cougar Management:** Based on increasing conflicts and human safety issues between people and cougar, the 2000 Legislature amended a 1996 initiative (Initiative 655) that prohibited the use of hounds for hunting black bear, bobcat and cougar. The amendments directed the Fish and Wildlife Commission to authorize the use of hounds in specified areas of the state where cougar pose a public safety threat. The Wildlife Program assisted the Commission in this process by developing a model that identifies areas of the state where cougar problems were occurring and when the number of encounters should result in the use of hounds for public safety. The first public safety cougar removals were conducted from December, 2000 to March, 2001 with a total of 23 cougar being destroyed in 17 public safety cougar units.
- **Initiative 713:** In November 2000, voters approved Initiative 713, which changed the way in which animals could be trapped. The initiative made it unlawful to use body-gripping traps to capture any animal without a permit issued by WDFW. Permits were restricted to protecting listed species and public health and safety, alleviating animal problems or conducting wildlife research. As a result, trapping activity by licensed trappers declined by 65% during the 2000-2001



*California bighorn sheep populations have rebounded from the severe winter of 1997, aided by transplants from Oregon and British Columbia.*

season, followed by a rapid increase in damage complaints from landowners.

These issues commanded a great deal of attention by both WDFW staff and the public, eclipsing a number of other key developments in wildlife management during the 1999-01 Biennium. During that time, the WDFW Wildlife Program drafted long-term management plans for all seven of the state's major elk herds, joined in a broad-based eco-regional conservation planning effort and helped to recover species and habitat affected by the 2000 eastern Washington wildfire season – one of the worst on record. Four species were added to the roster of State Listed Species during the biennium, while WDFW biologists monitored deer and elk herds for signs of chronic wasting disease and investigated the source of lead poisoning which had killed more than 200 swans in Whatcom and Skagit counties.

For hunters, perhaps the most obvious change during the biennium was WDFW's new automated system for purchasing licenses, applying for special permits and reporting hunting activity. For the first time, hunters were able to complete all these transactions over the phone – or apply for permits and file hunting reports over the Internet. Despite some start-up problems, the new system is designed to provide faster customer service and more accurate hunter information in future years.

Public involvement in the process for establishing hunting seasons was never higher than in the 1999-01 Biennium. More than 3,000 members of the public attended meetings, logged on to the Internet, or wrote to WDFW and the Commission to express their views during the establishment of hunting seasons from 2000 through 2002. Generally, Washington's deer and elk hunters, who comprise more than 75% of all hunters in the state, saw season changes that liberalized seasons and created additional special-permit hunting opportunity.

Through the Internet, WDFW also reached an entirely new portion of the public with candid images of wildlife species in their native habitat. Using donated equipment, two WDFW employees created the highly popular EagleCam website, featuring eagle nesting behavior in real time. The website received more than 500,000 visits after it went on line in May 2001, creating a ready-made audience for BatCam, SalmonCam and other sites to follow.

The WDFW Wildlife Program, with lead responsibilities for all of these activities, is made up of four divisions: Game, Wildlife Diversity, Land Management and Wildlife Science. In the 1999-01 Biennium, the program as a whole had a total operating budget of \$35.6 million, supporting 213.7 FTE employees. Major program activities are discussed, by division, in this section of the report.

## GAME MANAGEMENT

Within WDFW's Wildlife Program, the Game Division is responsible for managing more than 50 species that are sufficiently abundant and widespread to support recreational hunting and viewing opportunities. Under state law, WDFW is directed to maxi-

### Wildlife Program Funding and Personnel, 1999-01 Biennium

(dollars in thousands)	GF-S		OTHER FUNDS		TOTAL	
	Funding	FTEs	Funding	FTEs	Funding	FTEs
Administration	\$565	--	\$1,825	16	\$2,390	16
Game Division	\$783	5	\$5,222	27	\$6,005	32
Wildlife Diversity	\$713	6	\$3,539	25	\$4,252	31
Science Division	\$675	6	\$4,045	24	\$4,720	30
Lands Division	\$5,866	29	\$12,380	76	\$18,246	105
Belated Claims	--	--	\$18	--	\$18	--
<b>TOTAL</b>	<b>\$8,602</b>	<b>46</b>	<b>\$27,029</b>	<b>168</b>	<b>\$35,631</b>	<b>214</b>

mize hunting opportunities for Washingtonians while also ensuring the health and long-term viability of wildlife populations. The Game Division worked throughout the biennium to gain up-to-date knowledge about the biological status of individual wildlife populations to provide a scientific basis for management decisions by WDFW and the Washington Fish and Wildlife Commission.

Most big game populations showed substantial recovery from the hard winter of 1996-97 as waterfowl populations stabilized at high levels after the prolonged drought from the mid-1980s through the early 1990s. Small game population levels were more variable, but were typically well below long-term averages. After an earlier drop that mirrored a year of high deer mortality in 1997, hunter numbers increased steadily along with deer populations from 1998 to 2000.

Throughout the biennium, WDFW worked closely with tribal governments to coordinate wildlife management efforts throughout the state. Issues raised



*Mule deer populations have benefitted from high buck/deer ratios, due in part to recent mild winters.*

by the court's decision in *State v. Buchanan* about tribal hunting areas were addressed through cooperative processes involving the tribes, WDFW and affected county prosecutors, although some inter-tribal issues remain unresolved. Most of the atten-

### Annual Harvest of Big Game Species (1991-2000)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	10 year Average
<b>Deer</b>	57,112	55,297	35,681	47,002	37,765	39,442	31,525	30,253	35,760	40,976	41,081
<b>Elk</b>	8,646	8,875	6,367	9,967	6,429	6,953	4,919	5,858	7,109	8,278	7,340
<b>Black Bear</b>	1,410	1,442	1,507	1,073	1,218	1,310	844	1,802	1,120	1,182	1,291
<b>Cougar</b>	135	156	121	177	283	178	132	184	273	208	185
<b>Bighorn sheep</b>	13	17	15	16	14	10	9	12	17	16	14
<b>Moose</b>	8	11	10	19	20	30	28	38	44	66	28
<b>Mt. Goat</b>	66	92	76	58	48	47	26	37	32	30	51

### Small Game Harvest Trends (1991-2000)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
<b>Quail</b>	110,565	122,398	61,487	84,500	67,069	84,602	127,656	107,689	102,369	131,789	100,012
<b>Chukar/Gray Partridge</b>	69,657	48,367	22,020	35,086	28,050	54,928	47,017	50,425	41,145	45,032	44,172
<b>Turkey</b>	197	224	272	384	586	626	823	1,000	1,615	1,791	752
<b>Pheasant</b>	132,288	164,595	109,405	131,787	93,792	134,505	176,245	155,499	127,738	131,701	135,756
<b>Forest grouse</b>	166,307	194,218	143,262	160,797	169,629	134,605	137,062	140,997	73,429	148,193	146,850
<b>Rabbits</b>	22,412	28,874	18,376	19,304	19,027	18,610	9,037	10,955	7,931	10,120	16,465
<b>Dove</b>	70,967	82,206	52,306	101,515	61,454	80,057	111,602	68,070	65,450	99,731	79,336
<b>Ducks</b>	307,097	341,815	242,501	410,764	389,305	427,711	614,890	557,684	482,575	528,091	430,243
<b>Geese</b>	53,080	60,397	48,848	57,959	46,091	65,608	73,784	58,329	71,062	87,942	62,310

## Number of Hunters/Hunter Days for Select Species (1991-2000)

(Estimates based on 12% sample)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	10 year Average
Deer hunters	184,097	204,147	194,499	183,736	180,757	173,311	134,199	149,301	152,840	149,971	170,686
Deer hunter days	1,175,466	1,257,654	1,218,490	1,274,793	1,225,777	1,067,716	908,722	924,423	1,450,784	949,631	1,145,346
Elk hunters	82,472	84,503	87,088	80,297	81,710	77,039	59,015	70,316	83,487	86,205	79,213
Elk hunter days	474,630	472,639	496,666	492,821	467,122	421,718	333,915	406,562	645,962	471,080	468,312
Bear hunters	10,839	11,648	12,179	11,530	11,859	12,868	11,060	20,891	37,033	37,484	17,739
Bear hunter days	84,771	98,434	102,558	110,872	102,859	104,431	97,426	216,456	481,492	297,286	169,659
Cougar hunters	175	208	232	352	402	175	--	--	--	--	--
Cougar hunter days	1,052	1,358	2,317	2,967	2,816	893	--	--	--	--	--

tion focused on the management and harvest of elk. With additional funding provided by the Legislature, WDFW was able to improve monitoring of elk populations, partly through joint state/tribal projects using tribal resources. In addition, WDFW worked in consultation with the tribes to develop ten elk herd plans, designed to meet common state and tribal management objectives.

As previously discussed, citizen initiatives directed at wildlife management required WDFW and the Commission to adopt a number of policy changes – specifically with regard to cougar management and trapping. While addressing these and other emerging issues, the Game Division continued to perform such core activities such as population surveys, game harvest and hunter surveys, and development of recommendations for hunting seasons. The *Game Status and Trend Report*, *Game Harvest Report*, hunting seasons and rules pamphlets and *Washington Hunting News-Game Trails* were published annually and distributed to the public. The Fish and Wildlife Commission adopted the 2000-02 hunting season package in April 2000 after extensive public review and comment.

WDFW's Game Management Advisory Council, composed of approximately 20 citizen volunteers, remained very active throughout the biennium. The council provided recommendations to the department on a wide range of management issues, including hunting seasons and regulations.

Harvest surveys were the principal means of monitoring population trends for many game species. A mail questionnaire was sent to a minimum of 12 percent of hunting license purchasers. Their answers to

the questionnaire formed the basis for estimates of harvest and hunter participation.

A mandatory harvest report card, introduced in 1998, continued in effect for black bear and cougar hunting seasons. The report card was attached to each bear or cougar transport tag and was to be completed and returned whether or not the hunter was successful in bagging an animal. In addition, bear hunters were given the option of reporting using the WDFW Internet website or a toll-free telephone number (877-945-3492). All trappers of fur-bearing animals were required to complete and return a trapper report of catch. Of the 323 trappers licensed in 2000, a total of 261 (81 percent) reported.

### Deer

The 1998-99 and 1999-00 winters were mild and overall deer survival was good. The statewide buck escapement goal of 15 bucks per 100 antlerless animals was met in most areas of eastern Washington through a three-point minimum antler restriction and short modern firearm hunting seasons. Whitetail deer populations recovered much faster from previous harsh winters than did mule deer, allowing antlerless whitetail harvest to be reinstated.

In central Washington, buck escapement improved and was above management objectives in most units. Permit-only harvest restrictions imposed in 1997 in some game management units were continued to help achieve buck escapement goals. Those units (242 Alta, 290 Desert, 329 Quilomene, 330 West Bar, 342 Umtanum and 371 Alkali) included open, arid lands with minimal cover that did not reach buck escapement goals under general hunt-

ing seasons strategies. Other units were near buck escapement goals.

Throughout western Washington, blacktail deer harvest remained relatively stable. However, success rates decreased in southwest Washington, the most productive blacktail region. Urban development contributed to reduced hunter success in lowland areas. In addition, hair loss syndrome appeared to impact blacktail harvest levels in some areas of western Washington.

Deer population surveys were very limited in Washington. Biologists expanded the use of population models to manage blacktail and whitetail deer, but the models were limited by the amount of population and mortality data available. A study was initiated to evaluate the annual buck mortality rate in western Washington, estimated at 75 percent. Annual mule deer population surveys (pre-season, post-season and spring) continued in north-central Washington. Mule deer surveys were also initiated in one central Washington unit.

The hair loss syndrome in blacktail deer continued to appear in some areas of western Washington. The syndrome was characterized by heavy lice burdens and musclem worm larvae that migrate to the lungs and impair respiration, inhibit immunities and allow other parasites to take over and weaken the animal. Most observations of diseased animals were made during winter months. Deer with the syndrome were identified by hairless patches of skin on their sides and flanks. Some animals with extensive hair loss, especially fawns, died from hypothermia. Other deer with less hair loss recovered and appeared normal by summer months. Field studies were conducted on Indian Island, the submarine base near Bangor, McNeil Island and in southwest Washington.

Epizootic Hemorrhagic Disease (EHD) periodically affected whitetail deer in eastern Washington. An outbreak occurred in 1999 in GMUs 127 through 142. The area, just south of Spokane, was subject to more frequent EHD mortality. In 1999 the EHD outbreak spread to a larger-than-usual area of farmland in Spokane and Stevens counties. In some localized areas mortality rates were as high as 60 or 70 percent, but incidences of this mortality level were isolated.

## Elk

Five of Washington's 10 elk herds were well below population goals during the 1999-01 Biennium. Three appeared to be fairly healthy and the other two were stable. Status, by herd, is summarized below:

- **Yakima:** Numbers increased to an estimated 10,500. This herd was controversial because of agricultural crop damage and use of private grazing lands. Hunting seasons were expanded in an effort to reduce herd size. The Rattlesnake Hills population had grown to about 900 elk in 1999. Nearly all the elk were on private land with limited hunting available and on the Arid Lands Ecology Reserve where they are protected. The population was reduced through increased harvest and removal by trapping.
- **Selkirk:** Population estimated at 1,900 elk. Numbers appeared to be increasing, but survey data was inadequate to confirm the trend.
- **Blue Mountains:** Stable at an estimated 4,400 animals; 1,100 below management objectives. Elk populations on the west side of the Blue Mountains were stable, while elk numbers on the east side declined.
- **Olympic Peninsula:** Herd population declined approximately 40 percent over the preceding 10 years, then stabilized far below population goals. The population was estimated at 10,400, with 4,000 animals in the Olympic National Park and 6,400 outside the park.
- **Colockum:** Population stable at 4,500.
- **St. Helens:** Herd size was within population goals at 13,350, although population modeling indicated a slight decline in numbers.
- **Willapa Hills:** Population modeling in the southern part of the herd area indicated a slight decline in numbers, which were estimated at 4,200.
- **North Rainier:** Herd size was below goal at 1,250; damage issues arose along the Puget Sound corridor.
- **South Rainier:** Population declined and was below goals at 2,100, damage issues arose near Packwood/Randle and Tenino/Centralia areas.
- **Nooksack:** Currently numbering only 250 to 300 animals, herd size was down from over 1,000 elk historically. Approximately 80-100 animals remained along the Skagit River where they con-

tinued to cause pasture damage. The Department implemented liberal hunting seasons to alleviate the damage problem.

Elk populations were under intense hunting pressure statewide during the biennium. With approximately 80,000 elk hunters and an estimated elk population of 45,000 animals, Washington had the highest number of hunters per elk of the 11 western states. Bull elk in Washington were hunted in seasons that started in September and extended until the middle of December in some areas. In an effort to respond to high hunter demand while balancing resource conservation, increased antler restrictions and reduced season lengths were adopted to achieve bull escapement objectives.

During the 1999-01 period, tribal hunters increasingly exercised their treaty hunting rights, especially for elk. In June of 1999, the state Supreme Court ruled in the case of *State v. Buchanan* that members of federally recognized treaty tribes could hunt only within their ancestral hunting areas. Amid efforts to determine which areas were open to each treaty tribe, WDFW continued working with tribal managers to protect herds from over-harvest and habitat loss through cooperative agreements and elk herd plans. By mid-2001, the first such plan – the Blue Mountains Elk Herd Plan – was approved, and draft plans had been written for the South Rainier, North Rainier, North Cascade, Yakima, Selkirk and Mount St. Helens elk herds.

In February and March of 2000 the Rattlesnake Hills elk population, which resides primarily in the Arid Lands Ecology Reserve, was reduced in response to damage complaints from private landowners. The



*Hunting opportunities for mountain goats have been restricted as populations continue to decline.*

operation resulted in the successful capture and release of 157 elk to the Blue Mountains and the Selkirk area. In addition, liberal hunting seasons aided by an extensive fire on the Reserve resulted in a harvest of over 200 elk during the fall of 2000. The reduction of the elk herd on the Arid Lands Ecology Reserve was expected to help relieve crop damage problems that escalated with increases in elk numbers.

Increased legislative funding of \$350,000 during the biennium was used to pay for the initial design and programming of an improved harvest reporting system and for the development of elk population estimates for three sub-herds in cooperation with several tribes on the Olympic Peninsula. The funds also contributed to population studies conducted on the Green River elk herd in cooperation with the Muckleshoot Tribe. In addition, elk herd composition surveys were expanded for the Olympic, Willapa Hills, South Rainier, St Helens, Colockum and Yakima elk herds. The Nooksack elk movement and distribution study was also initiated with the new funding, in preparation for possible augmentation of the herd.

## Mountain Goat

Mountain goat populations continued their long decline from an estimated historic peak of 10,000 animals to fewer than 4,000. Hunting opportunity was decreased accordingly, with only 41 permits issued in each year of the biennium. Despite continued harvest reductions many goat populations continued to decline. Contributing factors may include predation and disease, but Department biologists believe habitat changes are the primary cause of this downward trend. A mountain goat research project using federal funding was proposed to investigate the decline and status of goats.

## Bighorn Sheep

Rocky Mountain bighorns in the Blue Mountains continued to struggle as they recovered from a 1995 disease outbreak, which decimated their populations. The disease organism, *pasteurella*, was carried by domestic sheep and goats and had dramatic consequences for wild bighorn sheep. The estimated Blue Mountains sheep population has now stabilized at low levels.

California bighorn sheep populations increased in most herds, as the animals rebounded from a severe

winter in 1997, and reintroductions were conducted by the Department. The population of California bighorns rose to more than 700. New herds were established in the Lake Chelan and Tieton River drainages. Using transplanted sheep from British Columbia, Oregon and various herds in Washington, the Lake Chelan and Tieton River areas received more than 45 sheep each.

## Moose

Moose hunting continued to draw tremendous interest in Washington. Moose appeared to expand their range and it appeared feasible to consider increased future hunting opportunity for the species. However, more information was needed on herd composition, productivity and natural mortality factors affecting the populations and the level of harvest they could

### Rocky Mountain Bighorn Sheep Population Trends

Sheep Herd	Population							Comments
	1994	1995	1996	1997	1998	1999	2000	
Hall Mountain	35	35	35	30	30	29	--	Lamb survival is varied. Population slowly recovering to 1993 level.
Asotin Creek	15	12	13	13	30	35	38	Minimal lamb survival in 1999.
Black Butte (Joseph Creek)	215	50	45	54	64	70	80	Population slowly recovering. Yellow-star thistle continues to spread.
Wenaha	110	90	50	69	65	70	65	Lamb mortality declined. Yellow-star thistle is serious range threat.
Cottonwood Creek (Mt. View)	60	45	18	23	23	32	27	Survival of lambs in 2000 decreased from 1999 level.
<b>Total</b>	<b>435</b>	<b>232</b>	<b>161</b>	<b>189</b>	<b>212</b>	<b>236</b>	<b>210</b>	

### California Bighorn Sheep Population Trends

Sheep Herd	Population							Comments
	1994	1995	1996	1997	1998	1999	2000	
Tucannon	50	45	50	50	42	30	27	Continued poor lamb survival.
Vulcan	115	100	70	70	35	24	--	Continued population decline. High evidence of disease in herd.
Mt. Hull	--	55	60	65	--	70	65	Recent fire on Mt. Hull. Mature rams missing after fire.
Sinlahekin	--	--	45	40	40	40	30	Population continues to struggle. Range forage condition is poor due to noxious weeds and livestock grazing competition.
Swakane	30	38	25	30	36	35	--	Population is static and is exposed to domestic sheep and disease risk.
Quilomene	50	70	90	135	143	164	165	Exposure to domestic sheep a threat.
Umtanum	200	150	150	150	154	174	173	Population stable given transplants and movements.
Cleman	55	60	65	100	117	135	156	Population continues to grow.
Lincoln Cliffs	35	45	65	90	102	88	95	Excellent production continues as herd continues to grow.
Lake Chelan	--	--	--	--	--	--	47	
Tieton	--	--	--	--	--	--	37	Eighteen lambs produced in last three years.
<b>Approx. Total</b>	<b>635</b>	<b>608</b>	<b>620</b>	<b>730</b>	<b>734</b>	<b>760</b>	<b>795</b>	

sustain. Winter helicopter surveys proved effective in determining moose distribution and sex/age composition. Not all units were flown each year due to funding limitations, but one or two traditional areas were flown and a new area was added each year. Monitoring the calf/cow ratio and winter snow conditions was especially crucial in determining recruitment.

The need increased for stricter management of moose populations (primarily through harvest opportunity) in the GMUs surrounding Spokane, in order to address increasing nuisance concerns in the metropolitan area. Moose continued to expand their range with sightings reported from many areas, including western Washington.

### Black Bear

The long-term outlook for black bear was generally good. Based on a model using population reconstruction methods and harvest age data, the statewide black bear population was estimated at more than 30,000 animals by mid-2001 and appeared to be increasing. Statewide harvest and median age data in-



Washington has one of the largest black bear populations in the nation.



Moose have been expanding their range on both sides of the Cascade Mountains.

dicated that the bear population, as a whole, was not impacted by harvest.

Washington faced a unique and challenging situation in black bear management. Washington has one of the largest black bear populations in all of the lower 48 states, much of it in close proximity to human habitation. Meanwhile, the state's human population—the second-highest in the 11 western states—continued to grow at record levels. However, approximately 75% of Washington's black bear habitat was in federal or private industrial ownership, so a large portion of the core black bear habitat was relatively secure.

As local bear populations responded to urbanization and subsequent reduced harvest pressure, a greater emphasis on monitoring populations within individual bear management units appeared necessary. Harvest age guidelines, indicators of the overall health of the bear population, were used to monitor the influence of harvest.

## Guidelines for Black Bear Harvest Management

Criteria	Over Harvest	Acceptable Harvest	Desirable Harvest	Results
%Females in harvest	≥ 40%	≤ 36%-39%	≤ 35%	33% (1997-2000 average)
Median harvest age	≤ 3 Years	≥ 4 Years	≥ 5 Years	4.8 years (1997-1999 average)*
Median age of males in harvest	≤ 2 Years	> 2 Years	≥ 4 Years	4.8 years (1997-1999 average)*
Median age of females in harvest	≤ 4 Years	≥ 5 Years	≥ 6 Years	4.8 years (1997-1999 average)*

\* Estimate

## Cougar

The state's cougar population in the 1999-01 Biennium was estimated to be between 2,500 to 4,000 animals, and rising at a rate of about 3% per year. This estimate by WDFW is about double the size of the state's estimated cougar population in 1980.

Hunting pressure on cougars dropped significantly in 1996 after voters approved Initiative 655, banning the use of hounds for hunting cougar, bobcat and black bear. By 1997, the number of cougars killed by hunters (132) declined 53% from 283 killed in 1995, despite the fact that WDFW expanded cougar-hunting season from six weeks to 7½ months to address the anticipated decrease in cougar harvest.



*In 2001, the Legislature authorized the use of hounds to hunt cougars that present a risk to public safety.*

By the 1999-01 Biennium, however, harvest levels increased to 273 animals in 1999 and 208 in 2000, probably due to a growing cougar population, more liberal hunting seasons and a larger number of hunters carrying cougar tags. In 2001, the Legislature authorized the use of hounds to hunt cougars that present a risk to public safety. WDFW worked with hound hunters, the Humane Society of the United States and other interested groups to develop rules for the use of hounds to remove cougars that posed safety threats in specific areas.

## Waterfowl

Pacific Flyway waterfowl populations continued to increase in the 1999-01 period, mainly due to increased rainfall and improved nesting conditions. These population increases allowed for longer seasons and larger bag limits. Under the federal framework the maximum number of hunting days allowed under the Migratory Bird Treaty was 107 days. The

general season length was 106 days; with one day reserved for the September Youth Hunt. The bag limit was seven ducks, with two hen mallards.

Regulations were the most liberal ever offered in Washington. Only in 1964-65 and 1970-71 were seasons as long at 107 days on the east side of the state.

WDFW instituted a new license format for the 1999-00 hunting season. A small game license and big game license replaced a general hunting license. For those who hunted a variety of small game species, there was little change in total cost. For people who exclusively hunted waterfowl, the new format resulted in increased cost. Fees for state and federal migratory bird stamps did not increase for the 1999-00 season.

Goose hunting regulations were dynamic. Changes resulted from efforts to protect declining populations of particular Canada goose sub-species (e.g. dusky geese); increase recreational opportunities on expanding populations of Canada geese; simplify regulations, and to address damage/nuisance complaints. The number of goose management areas remained at five for 1999-00.

A 1999-00 midwinter waterfowl inventory was completed by WDFW and U.S. Fish and Wildlife Service (USFWS) personnel. Washington's data for 2000 showed decreases of 39% from the previous year and 5% from the long-term average. The decreases resulted from unusually high numbers in 1999 and unexpectedly lower numbers in 2000. The January 2000 survey number apparently resulted from ducks redistributing to other parts of the flyway.



*Canvasbacks were one of several species that showed a decline between 1999 and 2000.*

## Waterfowl Inventory, January 2000

<i>Species</i>	1990	1992	1994	1996	1998	2000
<b>Mallard</b>	594,709	764,514	421,864	310,724	547,134	442,811
<b>Wigeon</b>	116,486	101,733	95,801	73,771	117,536	112,926
<b>Green-winged Teal</b>	14,857	11,466	11,834	10,993	6,729	11,089
<b>Pintail</b>	74,837	62,813	35,896	48,227	43,763	70,040
<b>Redhead</b>	5,036	4,014	3,744	1,517	2,495	1,505
<b>Canvasback</b>	3,517	2,423	1,401	4,673	6,261	2,898
<b>Scaup</b>	20,743	25,685	26,590	32,261	28,684	26,933
<b>Goldeneye</b>	9,365	15,730	16,910	19,663	12,894	13,157
<b>Bufflehead</b>	13,611	24,750	21,317	19,441	14,780	18,017
<b>Scoter</b>	40,060	42,356	23,952	26,059	21,389	20,326
<b>Other ducks</b>	21,478	26,083	39,712	33,806	31,173	34,106
<b>Snow Goose*</b>	15,062	21,855	34,867	32,340	42,666	48,843
<b>Canada Goose</b>	79,527	113,333	90,780	76,884	95,444	91,229
<b>Brant</b>	13,756	13,505	13,595	7,082	10,881	13,859
<b>Tundra Swan**</b>	939	3,209	2,616	4,118	3,424	4,342
<b>Trumpeter Swan**</b>	183	308	171	3,017	2,352	3,896
<b>Unknown Swan**</b>	626	113	129	85	371	402
<b>Coot</b>	19,478	43,690	33,378	59,652	58,199	62,387
<b>TOTAL</b>	1,044,277	1,277,581	841,181	764,338	1,046,173	978,769
B.C. Snow Geese*	18,290	17,244	12,371	7,206	1,418	879
Skagit/B.C. Total	33,352	39,099	47,238	39,546	44,084	49,722

\*\*Comprehensive western Washington swan surveys in 1989, 1991, 1996 only

Some 100 trumpeter swans were found dead in late January 2000 northeast of Bellingham and a similar number succumbed in 2001 in the same general area. The birds appeared to have fallen victim to lead poisoning, although the source of the lead was not confirmed. Lead shot was banned for waterfowl hunting in western Washington in 1986 and nationally in 1991. All the dead swans were examined and showed signs of lead poisoning. Several were X-rayed, revealing lead-shot in their gizzards. The Department continues to investigate the source of lead poisoning.

### Dove and Band-tailed Pigeon

Based on call-count surveys, the band-tailed pigeon population appeared to have generally increased. However, the band-tailed pigeon hunting season remained closed in 1999-01, because wildlife managers recommended waiting to make sure the trend would continue before subjecting the population to hunting pressures.

The 1999 harvest of approximately 100,000 mourning doves was an improvement over the reported harvest of 65,450 doves the previous year. Eastern

Washington provided 98% of the statewide harvest, and 92% of the dove hunters. Grant County had the highest number of dove hunters and Yakima County was the leading county in dove harvest.

### Turkey

Harvest opportunity for wild turkeys included a 31-day spring season statewide as well as five-day fall, permit-only seasons in selected counties, beginning in 2000. From 1995 to 2000, hunters were allowed to take one bearded turkey per day from each of three subspecies, for a total of three per year. Starting with the 2001 spring season, hunters were allowed to harvest a total of two bearded turkeys in most eastern Washington counties – regardless of species – and purchase tags throughout the season. Regulations were considered relatively conservative. Statewide harvest increased yearly along with hunter numbers.

Wild turkeys continued to be trapped and translocated in many parts of the state. The birds were used to enhance existing populations, establish new populations in appropriate habitat and trade with other states in cooperative conservation projects. The Department attempted to create new popula-



*Washington is one of only a few states with all three subspecies of wild turkeys. WDFW transplanted a number of birds to establish new populations.*

tions in the Chelan and Yakima areas. In February 2000, 155 turkeys from Ferry and Stevens counties were released in Chelan and eastern Kittitas counties. Turkeys were released on lands owned by WDFW, the state Department of Natural Resources, and private individuals in 11 locations (every two to six miles) from Tekison Creek in Kittitas County north to the Entiat River in Chelan County. Landowners were contacted prior to releases and were enthusiastic about release efforts.

During the winter of 1999-00, Merriam's turkeys were trapped in Stevens County and released in Yakima and Kittitas counties. Eight birds were equipped with radio transmitters. The project created much enthusiasm among hunters who formed a local chapter of the National Wild Turkey Federation (NWTF). Releases and radio marking continued in 2000-01 with the help of NWTF. In 2000, some 26 turkeys were released in northern Snohomish County in an effort to augment an earlier release of 12 birds in 1998. In the same year, 268 eastern wild

turkeys from Iowa were released at sites in Thurston, Pacific, Grays Harbor and Mason counties.

The Upland Wildlife Restoration Program continued to enhance upland habitats within wild turkey range. The Department, private timber companies and the Department of Natural Resources continued to cooperate to enhance habitats and establish huntable populations of eastern wild turkeys, in accordance with habitat and hunter-access agreements signed in 1997.

## Grouse

Based on long-term harvest trends, it appeared that forest grouse (blue, ruffed and spruce) harvest and population numbers remained relatively stable, as they had for 30 years. Because of mis-identification problems, it was difficult to evaluate trends for individual species. Annual production was greatly influenced by weather conditions during the peak of hatching (late May to early June). Wet and windy weather reduced chick survival both through exposure and reductions in insect populations at the time when young grouse needed a high-protein diet. Harvest trends continued a nine-year decline in western Washington but were more stable in eastern Washington.

## Pheasant

Hunting season structure and bag limits were conservative. Hunter success changed dramatically over the long term due to the type of agricultural crops grown, timing of harvest, and changes in growing practices, which decreased the amount of effective pheasant hunting cover in irrigated farmland.

Pheasant populations statewide plummeted from levels of the early 1980s, when hen populations at the beginning of nesting season were approximately 100 per section in the Columbia Basin. By 1996, hen density was approximately 10 per section. Breeding season rooster density declined concurrently with hen density, but at a slower rate, from approximately 20 per section in the early 1980s to 13 per section in 1999 and approximately four per section in 2000. To offset these declines, 20,000 farm-raised roosters were released each year of the biennium to provide additional birds for harvest.

Pheasant habitat continued a decades-long decline. Changes in farming practices, particularly in irrigated land, were the main cause of habitat degradation.

Grain, pasture and alfalfa fields were converted to high-value crops such as orchard, vineyard and hops. Cleaner farming practices removed cover bordering fields, riparian areas and irrigation canals. Forbs, weed seeds and insects benefit pheasant survival, when herbicides and pesticides aren't heavily used to keep crops free of weeds and insects. Pesticide depression of the insect base had an especially deleterious effect on pheasant chick survival. Agricultural crops did not provide enough year-round food or cover, since vineyards and hop fields typically were kept free of ground cover and grass cover within orchards generally mowed.

Urban development also negatively affected the pheasant population in the Columbia and Yakima basins, as homes were built in areas that historically provided pheasant nesting and habitat.

The federal Conservation Reserve Program (CRP) did not benefit pheasant habitat in irrigated areas as it did in other areas of the state. In Washington, CRP paid farmers to convert over one million acres of highly erodible dryland wheat fields to permanent grass, forb and shrub cover. Because most agriculture in the Columbia and Yakima basins was irrigated, few acres were enrolled in CRP and few benefits to pheasant habitat were realized.

### Chukar and Gray Partridge

Hunting seasons for chukar and gray partridge were standardized throughout the state, running from October 1 to the third Monday in January with a daily bag limit of six and 18 in possession.

Chukar partridge populations declined dramatically since 1982 for unknown reasons. Chukars were plagued by habitat deterioration in southeastern Washington due to the spread of noxious weeds, poor nesting conditions due to drought and wet, cold weather during nesting season in 1999-2001.

The expansion of yellow star-thistle (*Centaurea solstitialis*) and other noxious weeds was extremely detrimental to chukar populations. Although most counties attempted to control yellow star-thistle, the amount of acreage impacted by the weed increased annually. Chukars thrive on lands that tend to be over-grazed and infested with cheatgrass (*Bromus tectorum*). Cheatgrass is a staple in chukar diets in spring and fall, and availability of cheatgrass can



*Farm-raised pheasants take flight after their release. WDFW released 20,000 farm-raised each year to provide additional birds for harvest.*

have a significant impact on chukar populations. However, conditions that promote cheat grass also provide optimum conditions for invasion by yellow star-thistle. As acreage of yellow-star thistle increased in the Snake River Basin, cheatgrass appeared to become less available.

### Quail

The California quail is an important upland game bird that also holds significant interest to wildlife viewers. Overall, quail harvest was relatively stable during the biennium. Hunting seasons extended from early October to mid- January. In addition, a two-day youth-only season for quail and pheasant was held in late September. The bag limit for quail was 10 per day, with 30 in possession. The mountain quail season was closed in eastern Washington because of extremely low population levels.

Like other upland bird species, quail suffered from habitat loss and degradation. The spread of noxious weeds threatened existing habitats. However, habitat for some upland birds improved with the advent of the CRP. Habitat enhancement for quail was conducted on Department properties and private land through cooperative agreements. In addition to vegetation management for food and cover, feeders were placed to provide grain in winter and water sources including guzzlers were developed. Upland Wildlife Restoration Program (UWRP) staff trapped and

translocated quail to take advantage of newly developed habitats. The quail were generally captured in urban and suburban areas and released at acquisition sites and other habitat development areas.

### Furbearers

In November 2000, Washington voters approved Initiative 713, which placed limits on the use of body-gripping traps to take animals. The initiative also made it illegal to buy, sell or trade mammals or raw furs of mammals taken in Washington with body-gripping traps. In addition it directed the Department to administer a special-permit process to allow use of some types of body-gripping traps under certain circumstances. The initiative made it unlawful to use or to authorize the use of body-gripping traps to capture any animal (including moles and gophers) except by special permit for protection of endangered or threatened species, protection of public health and safety, to alleviate animal problems or to conduct wildlife research.

Initiative 713 became law on December 7, 2000, disrupting the activities of trappers during the 2000-2001 season. The total number of reporting trappers dropped from 473 to 261 and the harvest of furbearers dropped nearly 75% from 12,665 animals in 2000 to 3,359 in 2001.

## WILDLIFE DIVERSITY

In addition to managing game animals, WDFW's Wildlife Program has stewardship responsibility for more than 500 species of mammals, birds, reptiles, amphibians, and terrestrial invertebrates in Washington that are not hunted or fished. Some of these species are common, others are classified as endangered

### Trends in Reported Furbearer Harvest

Species	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	*2000-2001
<b>Badger</b>	6	11	14	2	13	7
<b>Beaver</b>	5163	7456	8116	4558	4819	642
<b>Coyote</b>	1770	1864	1606	922	838	503
<b>Marten</b>	52	74	80	14	140	18
<b>Mink</b>	375	596	607	424	462	101
<b>Muskrat</b>	5335	11028	10924	4117	3572	1159
<b>Nutria</b>	320	923	1116	486	712	267
<b>Otter</b>	1368	2070	772	656	727	83
<b>Raccoon</b>	810	62	1307	832	571	250
<b>Skunk</b>	79	7	127	164	175	16
<b>Weasel</b>	49	14	49	47	87	44
<b>Bobcat</b>	1572	1941	521	324	549	269
<b>Total catch</b>	16899	26046	25239	12546	12665	3359
<b># of trappers reporting</b>	451	562	601	488	473	261

\* The trapping Initiative 713 became effective on December 7, 2000.

or threatened. Lead management responsibility for these species is vested in the Wildlife Diversity Division, which was guided by three primary objectives in the 1999-01 Biennium:

- Maintaining healthy populations of nongame species,
- Restoring populations of species that have declined to the point of being listed as endangered, threatened, or sensitive, and
- Providing opportunities for the public to observe wildlife in Washington.



WDFW initiated a captive breeding program for pygmy rabbits after their rapid decline in 2000.

To meet these objectives, the division's 40 FTE staff members managed, researched and surveyed hundreds of distinct species during the course of the biennium. With science as their foundation, they also provided management recommendations and biological expertise on these species and their habitats to other state, local and federal agencies, and to the public. Activities during the 1999-01 Biennium ranged from developing bald eagle protection plans with individual landowners to assisting in large-scale habitat-protection efforts involving multiple state, local federal and private partners.

Meanwhile, two employees of the Watchable Wildlife Program broke new ground in the Department's effort to promote the state's wildlife viewing opportunities and engage the public in habitat stewardship and wildlife conservation. With wildlife viewing now the number one outdoor activity in the United States, the program helped to steer travelers to key viewing areas in rural counties while using the Internet to bring the popular "WildWatchCam" series into people's homes.

### **State Threatened and Endangered Species**

As the state's human population continues to grow, more fish and wildlife species have been put at risk by loss and fragmentation of critical habitat, disturbance and introduction of non-native species. The Threatened and Endangered Species section of the WDFW Wildlife Program oversees the listing and recovery of those species in danger of being lost in the state.

By the close of the 1999-01 Biennium, 43 species were listed by the state as endangered (26), threatened (11) or sensitive (6). Two species listed as endangered – the Oregon silverspot butterfly and upland sandpiper – have recently been lost from the state and 103 other species are considered candidates for listing. Of those species listed by the state, 22 also appear on the federal list of endangered species.

For most species, habitat loss is the primary factor leading to their decline. Loss of shrub-steppe habitat in the Columbia Basin has resulted in the listing of more than a dozen species, from the pygmy rabbit to the striped whipsnake. In western Washington, nearly 95% of the region's prairie grasslands have been lost, leading to the listing or candidate status

of such species as the mardon skipper butterfly, streaked horned lark, and Mazama pocket gopher. Degradation of marine environments have contributed to the addition of the orca whale as a state candidate species in 2000 and review for listing by the National Marine Fisheries Service in 2001.

To halt and reverse declines in Washington's fish and wildlife species, the WDFW Threatened and Endangered Species section works to identify those species in jeopardy, outline actions needed for recovery and restore those species to their historic habitat. All of these actions involve coordination with multiple state, federal, local, private, and international partners. During the 1999-01 Biennium, the program was active in surveying, monitoring and working to recover a variety of critical and declining species, including the pygmy rabbit, woodland caribou, western gray squirrel, sage grouse, sharp-tailed grouse, and snowy plover. Key activities by WDFW and its partners are summarized below.

- **New listings in 1999-01:** The mardon skipper and northern leopard frog were added as state endangered species. The Olympic mudminnow and common loon were added as state sensitive species, and Cassin's auklet, short-tailed albatross, western toad, sharptail snake, white-tailed jackrabbit, black-tailed jackrabbit, Keen's myotis bat, orca whale, and bull trout were added as state candidate species.
- **Bald eagle:** WDFW completed a status review for the state threatened bald eagle, which found that bald eagle numbers had increased to more than 600 nesting pairs, up from about 100 in 1980. The elimination of DDT from the environment, protection from killing and habitat protection were identified as primary factors for recovery. Since 1986, WDFW has developed more than 1,500 landowner plans to protect and manage bald eagle habitat on state and private lands. A report reviewing all the plans was written in 2000. Concern remains for protection of shoreline nesting trees for two-thirds of the state's nests that are on private lands and the Department is recommending the eagle be downlisted to sensitive status when it is federally delisted. WDFW collected satellite telemetry data from birds captured and released in a study of origins and movements of Skagit River bald eagles. During the 2000-01 breeding sea-

# State Listed Species

The Washington Fish and Wildlife Commission has classified the following 43 species as Endangered, Threatened, or Sensitive. Many also hold a federal designation, such as Federal Endangered (FE), Threatened (FT), Proposed Threatened (FPT), Candidate (FC), or Species of Concern (FSC).

## State Endangered

A species native to the state of Washington that is seriously threatened with extinction throughout all or a significant portion of its range within the state. The 26 State Endangered species are designated in Washington Administrative Code 232-12-014.



*Bald eagle: Recommended for downlisting.*

### MAMMALS (13)

Pygmy Rabbit	FSC
Sperm Whale	FE
Fin Whale	FE
Sei Whale	FE
Blue Whale	FE
Humpback Whale	FE
Black Right Whale	FE
Gray Wolf	FE
Grizzly Bear	FT
Fisher	FSC
Sea Otter	--
Columbian White-tailed Deer	FE
Woodland Caribou	FE

### BIRDS (7)

American White Pelican	--
Brown Pelican	FE
Peregrine Falcon	FSC
Sandhill Crane	--
Snowy Plover	FT
Upland Sandpiper	--
Spotted Owl	FT

### REPTILES (2)

Western Pond Turtle	FSC
Leatherback Sea Turtle	FE

### AMPHIBIANS (2)

Oregon Spotted Frog	FC
Northern Leopard Frog	--

### INSECTS (2)

Oregon Silverspot Butterfly	FT
Mardon Skipper	FC

## State Sensitive

A species native to the state of Washington that is vulnerable or declining and is likely to become endangered or threatened in a significant portion of its range within the state without cooperative management or removal of threats. The 6 State Sensitive species are designated in Washington Administrative Code 232-12-011

### MAMMAL (1)

Gray Whale	--
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### BIRD (1)

Common Loon	--
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### FISH (3)

Pygmy Whitefish	--
Margined Sculpin	FSC
Olympic Mudminnow	--

### AMPHIBIAN (1)

Larch Mountain Salamander	FSC
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## State Threatened

A species native to the state of Washington that is likely to become endangered within the foreseeable future throughout a significant portion of its range within the state without cooperative management or removal of threats. The 11 State Threatened species are designated in Washington Administrative Code 232-12-011.

### MAMMALS (3)

Western Gray Squirrel	FSC
Steller Sea Lion	FT
North American Lynx	FT

### BIRDS (6)

Aleutian Canada Goose	FT
Bald Eagle	FT
Ferruginous Hawk	FSC
Marbled Murrelet	FT
Sage Grouse	FSC
Sharp-tailed Grouse	FSC

### REPTILES (2)

Green Sea Turtle	FT
Loggerhead Sea Turtle	FT

# State Candidate Species

The Washington Department of Fish and Wildlife has designated the following 103 species as Candidates for listing in Washington. Some of them already hold a federal designation, such as Federal Endangered (FE), Proposed Endangered (FPE), Threatened (FT), Proposed Threatened (FPT), Candidate (FC), or Species of Concern (FSC).

## State Candidates

Species that the Department will review for listing as State Endangered, Threatened, or Sensitive. The Department reviews species for listing following procedures in Washington Administrative Code 232-12-297. Public comment is solicited before the Department takes its listing recommendation to the Washington Fish and Wildlife Commission, which makes listing decisions. Listing is based solely on the biological status of the species.

<b>MAMMALS (12)</b>		<b>AMPHIBIANS (6)</b>		Chum Salmon	
Merriam's Shrew	-	Dunn's Salamander	-	Hood Canal Summer	FT
Townsend's Big-eared Bat	FSC	Van Dyke's Salamander	FSC	(includes Strait of Juan de Fuca, not	
Keen's Myotis Bat	-	Columbia Torrent Salamander	FSC	Puget Sound)	
White-tailed Jackrabbit	-	Cascade Torrent Salamander	-	Columbia River	FT
Black-tailed Jackrabbit	-	Western Toad	FSC	Sockeye Salmon	
Gray-tailed Vole	-	Columbia Spotted Frog	FSC	Snake River	FE
Brush Prairie Pocket Gopher	-			Ozette Lake	FT
Western Pocket Gopher	FSC	<b>FISH (38)</b>		Steelhead	
Washington Ground Squirrel	FC	Mountain Sucker	-	Snake River	FT
Wolverine	FSC	Lake Chub	-	Upper Columbia	FE
Pacific Harbor Porpoise	-	Leopard Dace	-	Middle Columbia	FT
Orca Whale	-	Umatilla Dace	-	Lower Columbia	FT
		River Lamprey	FSC	Bull Trout	FT
		Herring	†FC		
<b>BIRDS (23)</b>		Cherry Point	FC	<b>MOLLUSKS (6)</b>	
Short-tailed Albatross	FPE	Discovery Bay	FC	Giant Columbia River Limpet	-
Brandt's Cormorant	-	Eulachon (Columbia River Smelt)	-	Great Columbia River Spire Snail	FSC
Northern Goshawk	FSC	Pacific Cod	†FC	Newcomb's Littorine Snail	FSC
Golden Eagle	-	South and Central Puget Sound	FC	California Floater	FSC
Merlin	-	Walleye Pollock	†FC	Northern Abalone	-
Common Murre	-	South Puget Sound	FC	Olympia Oyster	-
Cassin's Auklet	FSC	Pacific Hake (Whiting)	†FC		
Tufted Puffin	FSC	Central Puget Sound		<b>BEETLES (4)</b>	
Yellow-billed Cuckoo	FSC	(Port Susan)	FC	Beller's Ground Beetle	FSC
Flammulated Owl	-	Black Rockfish #	-	Columbia River Tiger Beetle	-
Burrowing Owl	FSC	Brown Rockfish #	†FC	Hatch's Click Beetle	FSC
Vaux's Swift	-	Copper Rockfish #	†FC	Long-horned Leaf Beetle	-
Lewis' Woodpecker	-	Quillback Rockfish #	†FC		
White-headed Woodpecker	-	Tiger Rockfish #	-	<b>BUTTERFLIES (11)</b>	
Black-backed Woodpecker	-	Bocaccio Rockfish #	-	Yuma Skipper	-
Pileated Woodpecker	-	Canary Rockfish #	-	Shepard's Parnassian	-
Loggerhead Shrike	FSC	Yelloweye Rockfish #	-	Makah Copper	FSC
Streaked Horned Lark	FSC	Yellowtail Rockfish #	-	Chinquapin Hairstreak	-
Purple Martin	-	Greenstriped Rockfish #	-	Johnson's Hairstreak	-
Slender-billed		Widow Rockfish #	-	Juniper Hairstreak	-
White-breasted Nuthatch	FSC	Redstripe Rockfish #	-	Puget Blue	-
Sage Thrasher	-	China Rockfish #	-	Valley Silverspot	FSC
Oregon Vesper Sparrow	FSC	Chinook Salmon		Silver-bordered Fritillary	-
Sage Sparrow	-	Snake River Fall	FT	Whulge Checkerspot	FSC
		Snake River Spring/Summer	FT	Great Arctic	-
		Puget Sound	FT		
<b>REPTILES (3)</b>		Upper Columbia Spring	FE	# Puget Sound, the San Juan Islands, and the	
Sharp-tailed Snake	-	Lower Columbia	FT	Strait of Juan de Fuca east of the Sekiu R.	
California Mountain Kingsnake	-			† Puget Sound	
Striped Whipsnake	-				

## Not State Candidates

These fish stocks have been the subjects of federal register notices, but have not yet been added to the state candidate list.

Coho Salmon		Coastal Cutthroat Trout	
Puget Sound/Strait of Georgia	FC	SW Washington/Columbia River	FPT
Lower Columbia/SW Washington	FC		

son, WDFW had a video camera on a bald eagle nest, which was placed on the Department website. The site was extremely successful, receiving hundreds of thousands of visits from people all over the world.

- **Peregrine falcon:** A draft status review for the endangered peregrine falcon was written and released for public review in 2001. State population numbers increased from four known pairs in 1980 to 72 pairs in 2001. Numbers of pairs found in 1999-01 surveys increased from 60 to 72. Elimination of DDT and protection from disturbance contributed to statewide recovery. The release of 145 captive-reared peregrines from 1982 to 1997 helped to increase the rate of recovery in the eastern portion of the state. The U.S. Fish and Wildlife Service delisted the peregrine falcon in 1999. The Department is proposing to downlist the peregrine falcon from state endangered to state sensitive in 2002.
- **Western pond turtle:** A state recovery plan was completed for the endangered western pond turtle in 1999, identifying actions needed to restore the population. They include surveys, acquisition of critical habitat, captive breeding, release of both wild and captive-bred hatchling turtles, bullfrog control, habitat enhancement and public education. Another action involves “head-starting” turtles by removing them from wild nests, keeping them in captivity for a year and releasing them back into the wild when they are large enough to escape predation by bullfrogs and warmwater fish. Head-starts have been released back to the wild since 1991. In 1999-01,



*Recovery of western pond turtles looks promising with the success of “head start” programs.*

WDFW released 265 head-started juveniles and documented the first nesting in the wild by a head-started female in 2000. An experimental population has been established in Puget Sound with captive-bred turtles and in 2001, the first nesting by a captive-bred female occurred. Eighty head-started juvenile turtles were released on a US Fish and Wildlife Service refuge in 2000-01 to establish a new population in the Columbia River Gorge. Statewide population numbers have increased from an estimated 100 in 1990 to more than 600 in 2001. The program has been successful to date and prospects for eventual recovery of the species in Washington appear promising.

- **Sea otter:** Monitoring efforts found more than 600 otters on the outer coast from Cape Flattery to Destruction Island, with the range expanding both to the south and northeast into the Strait of Juan de Fuca. WDFW initiated a cooperative project with the U.S. Fish and Wildlife Service and the U.S. Geological Survey to monitor sea otter range expansion using radio-telemetry and to determine contaminant/biotoxin levels in Washington sea otters. Sea otters have been listed by the state as endangered since 1981.
- **Lynx:** A state threatened species since 1993, lynx were listed by the U.S. Fish and Wildlife Service as a federal threatened species in 2000. The Department completed a recovery plan for lynx in Washington in 2001, conducted DNA hair snagging and snowtracking surveys to determine presence of lynx and monitored animals by snow tracking. WDFW also initiated research studies of lynx in managed habitats and worked with federal agencies to develop a Lynx Conservation Strategy for federal management of lynx habitat.
- **Pygmy rabbits:** The state’s pygmy rabbit population declined precipitously in 2000-01, prompting the Department to develop an emergency action plan to prevent extirpation of the species from the state. The Department conducted genetic studies of pygmy rabbits from Washington, Oregon, Idaho, and Montana and concluded that the Washington pygmy rabbit is unique, and may be a separate subspecies. Surveys conducted in 1999-01 found that sub-populations had declined from six to one, and in 2001 the one remaining population crashed. A decision was made to cap-

# Surveys and Forest Management Section

Virtually all wildlife-management activities rely on field surveys for critical information on the abundance, range, diet and other attributes of key species. While today's wildlife scientists may use sophisticated computers to analyze this data, field surveys still provide the foundation for any scientific assessment of management options.

At WDFW, much of this survey information on non-game wildlife species comes from the Surveys and Forest Wildlife Management Section, which is part of the Wildlife Diversity Division. During the 1999-01 Biennium, five biologists based in Olympia conducted surveys and coordinated others carried out by 30 other staff biologists throughout the state to provide needed information on species ranging from the marbled murrelet to the pileated woodpecker.

While this Department network surveyed a variety of listed and non-listed species, forest wildlife remained a major focus of the section during the biennium. Key activities of the Surveys and Forest Wildlife Management Section during the 1999-01 Biennium include:

- **Spotted owl monitoring:** Population trend monitoring being conducted by federal agencies indicate continued population declines of spotted owls in the state. The Department continued to build and improve upon the two state-wide spotted owl databases during 1999-01. The owl observation database contains all known observations of spotted owls reported in the State of Washington. The spotted owl database, which includes more than 24,000 records from 1,200 sites, contains all known spotted owl territories in the state. Staff solicited, analyzed, interpreted, and processed all owl surveys performed in the state.
- **Marbled murrelet surveys:** Extensive surveys were conducted on the marbled murrelet along the Washington coast, supported by a grant from the Tenyo Maru Oil Spill Restoration Trustees Committee. Seventeen new occupied sites were discovered, encompassing 1,700 acres of habitat. More than 3,000 new survey records were added to WDFW's marbled murrelet database with the help of 50 surveyors from other agencies, timber companies and consulting firms trained and certified by the Department.
- **Forest and Fish study:** While the landmark Forest and Fish Agreement (See Habitat Section) was designed primarily to protect habitat for fish and amphibians, it also has implications for other wildlife species. Section biologists and other staff initiated a pilot study to determine how modeled riparian buffers and other aspects of the agreement might affect one indicator species, the northern goshawk. Results of this study are scheduled to be finalized in the spring of 2002.
- **Landowner landscape plans:** In December 2000, WDFW and two other participating agencies submitted a final report to the Legislature and the Forest Practices Board on the state's Landowner Landscape Planning (LLP) pilot project. Using computer modeling to explore alternatives to standard practices, the project was designed to promote large-scale, multi-species approaches to forest management that offer greater management flexibility for a range of wildlife species while also optimizing the economic return to forest landowners. While funding for the project lapsed in 2000 before an LLP was completed, much was learned about the potential of landscape planning in forest management. Six large timber company participated in the project, along with WDFW, the state Department of Ecology and the Department of Natural Resources.
- **Snag recruitment:** One issue that emerged from the LLP project was the importance of snag recruitment – practice of managing forests so that dead trees remain available for species that depend upon them as a source of food and shelter. A model was developed that incorporates snag recruitment with forest succession and harvest rotation policies. A second model will be developed to identify strategies for achieving specific snag targets.
- **Forest pesticides:** The bacteria *Bacillus thuringiensis* (Bt) has long been used to treat Washington's forests for tussock moths, but concerns have arisen in recent years as to whether it is a safe alternative to forest pesticides. During the 1999-01 Biennium, WDFW produced a comprehensive document on Bt use and advised the U.S. Forest Service and landowners on ways to minimize its potential impact on other moths and butterflies – particularly listed butterfly species in the southern Cascade Mountains.

tive-breed rabbits in an emergency effort to try to save them. In spring/summer 2001, a dozen of the last known rabbits were captured for captive breeding at facilities at Washington State University, the Oregon Zoo, and Northwest Trek. The project objective is to produce up to 100 rabbits each year for release back into the wild. Other recovery activities include habitat acquisition, protection, and enhancement; public education, reduction of risk factors such as fire, predation, disease and trampling by cattle. The U.S. Fish and Wildlife Service is preparing an emergency federal listing proposal for the Washington pygmy rabbit.

- **Selkirk caribou:** The endangered Selkirk Mountain Woodland Caribou population declined to fewer than 30 animals during 1999-01, with nine mortalities during that time. The Department worked with state, federal, and Canadian partners in an effort to increase the caribou population and determine and address causes of mortality. Radio-instrumented caribou were monitored to determine habitat use, distribution, movements and survival. A study was conducted on the cougar population in the caribou recovery area to determine the extent of cougar predation on caribou. For education purposes, an internet web site, *Track A Caribou*, was established for classroom use.
- **Columbian white-tailed deer:** WDFW participated as a member of the U.S. Fish and Wildlife Service (USFWS) recovery team for Columbian white-tailed deer. In 1999-2000, the Department cooperated with USFWS to establish an additional subpopulation in the lower Columbia River. Thirty deer were transplanted from Puget Island, Wash., and Westport, Ore., to Crimms Island, Ore. Survival and retention of the deer on the island was good; approximately half of the deer still reside on the island, with the remaining animals established on the Oregon mainland nearby. Limited fawn production was documented on Crimms Island. Fawn production on the mainland refuge has been impacted by predation, with only five of the 13 radio-collared fawns surviving through October of 2000.
- **Grouse:** Populations of sage grouse and sharp-tailed grouse, listed as threatened by the state, continued to decline during the biennium. Department recovery activities included habitat acquisition, protection, and restoration; survey

and monitoring of all known populations; genetics analyses of sharp-tailed grouse; and work by an interagency group to develop a Sage Grouse Conservation Plan. That plan will be implemented by the participating agencies and will form the basis for the Department's recovery plan. Twenty sharp-tailed grouse were relocated from Idaho to the Department's Scotch Creek Wildlife Area in 2000 to increase population numbers. The Department provided technical input for a Habitat Conservation Plan initiated in Douglas County in 2000 to address conservation of multiple species, including sage and sharptail grouse. In 2000, the Department grouse scientist published papers on changes in distribution of sage and sharp-tailed grouse in the state and management recommendations for sage grouse habitat. In 2001, the U.S. Fish and Wildlife Service concluded that the Washington population of sage grouse warranted listing, but official listing was precluded by other priorities.

- **Oregon silverspot butterfly:** The Oregon silverspot butterfly, a state endangered species dependent on blue violets, has been extirpated in Washington. During 1999-01, the Department worked to restore violets to silverspot butterfly habitat in coastal areas of the state. The goal of the project is to develop dense, abundant areas of blue violets within meadows that will eventually support silverspot larvae. In 1998-00, approximately 19,000 violets were hand planted at a WDFW site and approximately 120,000 seeds were scattered in burned plots. Once the violets are established, the Department will undertake a reintroduction program for the butterflies.



Surveys located 19 previously unknown mardon skipper sites, although the species remains "endangered."

- **Mardon skipper butterfly:** Recovery efforts for another state endangered butterfly, the mardon skipper, involved surveys by the WDFW and the state Department of Natural Resources in 2000. Federal biologists, trained by WDFW staff in butterfly survey techniques and identification, conducted additional surveys on U.S. Forest Service lands. A total of 19 new mardon skipper sites were located; but numbers of individuals at sites were low. Only five sites had 50 or more individuals; and nine sites had fewer than ten individuals each.
- **Snowy plover:** The endangered western snowy plover nests in very low numbers at three sites in Washington. Recovery actions for plovers include monitoring, surveys and protection of nesting sites. The Department conducted nesting surveys in 1999-01 on the coast from Moclips to Tokeland. In 2000, fewer than 30 nests were found at Damon Point (2) and Midway Beach (25); 32 eggs hatched from 12 nests. Nest failures at Midway Beach (13) appeared due to high winds causing blowing sand, possible corvid predation, and possible abandonment. The U.S. Fish and Wildlife Service monitors nests at the third Washington site at Leadbetter Point. A state recovery plan for the species was written in 1995 and the Department participated in the development of a draft federal recovery plan for the plover in 1999-01.
- **Oregon spotted frog/Northern leopard frog:** Research activities were conducted for two state endangered frog species, the Oregon spotted frog and the northern leopard frog. A two-year study of an Oregon spotted frog population discovered in Thurston County in 1998 was conducted in 1999-00. Objectives of the study were to determine the size of the population and the characteristics of egg-laying habitat. Experimental habitat enhancement was also conducted. Based on counts of egg masses, this breeding population was estimated to include a minimum of 244 adults. Two other spotted frog populations occur in the Columbia River Gorge. Research on the northern leopard frog was conducted for the first time in the Columbia Basin of Washington during 2000. Frogs were instrumented with radio transmitters and information was collected on breeding chronology, breeding locations, habitat use, movements, distribution, and water quality. The study identified potential

threats to the population and will facilitate additional research into key factors affecting the frog populations and management strategies needed to restore populations.

- **Western gray squirrel:** A study was conducted in 1999-00 to determine home range sizes and identify important characteristics of nesting and foraging areas and travel routes of the state threatened western gray squirrel in Klickitat County. Results of the study will be used in future conservation efforts for the squirrel. The Puget Sound population of western gray squirrels plummeted in the late 1990s, when only a few squirrels could be found in areas that contained 80-100 squirrels in 1993 surveys. Western gray squirrel nest surveys were conducted in Chelan and Okanogan counties during 2000, revealing that only one of 89 historical nests remained although 29 new nests were found. A study was conducted during 1999-00 to evaluate western gray squirrel nesting activity on sites which had been harvested in Klickitat County. A more extensive research project was initiated in 2001 to determine annual survival, productivity, immigration and dispersal at sites where timber has been harvested. A state recovery plan for the squirrel was initiated in 2001.

## **Habitat and Species Conservation**

The Land Conservation section of the Wildlife Diversity Division promotes multi-species conservation through large-scale planning efforts, often involving a wide range of partners. The objective of the program is to not only protect critical habitat for threatened and endangered species, but also to “keep common species common” by identifying and protecting sites that represent a full range of wildlife species and habitats in Washington.

Key initiatives during the 1999-01 Biennium include:

- **Ecoregional Conservation Planning:** In 2001, a four-year cooperative project was initiated with The Nature Conservancy, the state Department of Natural Resources, the state Office of Community Development, Defenders of Wildlife, county governments and the University of Washington to identify the most important places for biodiversity conservation in each of Washington’s nine eco-regions. WDFW also began discussions with county representatives about ways to incorporate regional, multi-county

habitat considerations into their Growth Management planning process.

- Prairie-Oak Woodland Conservation:** WDFW also participated in a multi-agency Site Conservation Plan designed to protect South Puget Sound's prairie-oak woodland ecosystem. Less than 10% of this unique ecosystem remains intact, providing habitat for many species of concern, including the western gray squirrel, Mazama pocket gopher, mardon skipper, Whulge checkerspot, Oregon vesper sparrow and golden paintbrush. The plan includes management and restoration objectives for public lands and protection strategies for key private lands. Other key participants in the plan include the Thurston County Conservation District, the state Department of Natural Resources and Fort Lewis. In addition, WDFW is participating in the Thurston County Conservation District's federal Habitat Conservation Plan for Scatter Creek which includes a significant amount of riparian oak and prairie habitat.
- Shrub-steppe Habitat Conservation:** Less than 38% of eastern Washington's original sagebrush-grassland is present today, and much of what remains is in isolated fragments in relatively poor condition. Species of concern affected by this habitat loss include the pygmy rabbit, Washington ground squirrel, ferruginous hawk, burrowing owl, greater sage-grouse, sage thrasher, loggerhead shrike, sage sparrow, sagebrush lizard, and striped whipsnake. During the 1999-01 Biennium, WDFW biologists provided technical consultation to the Natural Resources Conservation Service, the Department of Natural Resources and private landowners to review Habitat Conservation Plans and grazing and agricultural practices in an effort to slow the decline of the shrub-steppe ecosystem. WDFW also acquired approximately 1,000 acres of prime shrub-steppe land during the biennium which, together with previous holdings and croplands enrolled in the federal Conservation Reserve Program, provide protection for shrub-steppe wildlife and corridors necessary for mammals to move between isolated patches of habitat. WDFW is a major partner in the Foster Creek Conservation District Multi-species Habitat Conservation Plan that is being developed for Douglas County.

- Priority Habitats and Species:** During the 1999-01 Biennium, management recommendations were written and distributed to the public via the WDFW web site for 14 species or groups of species, including white pelican, blue grouse, cavity-nesting ducks, chukar, common loon, ferruginous hawk, great blue heron, harlequin duck, mountain quail, peregrine falcon, prairie falcon, ring-necked pheasant, sandhill crane, and wild turkey. The Priority Species Management Recommendations are used by agencies and private landowners to reduce impacts to fish and wildlife during development and other land management activities.

### Watchable Wildlife Program

Wildlife viewing is now the number one outdoor activity in the United States and a major component of the tourism industry. Birdwatching alone has been the nation's fastest-growing recreational activity over the past 10 years, drawing an increasing number of visitors to Washington communities.

WDFW's Watchable Wildlife Program was established in July 1997 to promote the state's wildlife viewing opportunities and engage the public in habitat stewardship and wildlife conservation. In the 1999-01 Biennium, the program's two staff members worked with organizations throughout the state to meet those goals and leverage the popularity of wildlife viewing to benefit local economies, particularly in rural areas.



*A school group goes birdwatching, the nation's fastest-growing recreational activity over the past decade.*

Those benefits can be significant. According to the U.S. Bureau of the Census, participants in wildlife watching activities spent some \$1.7 billion in Washington in 1996, supporting more than 21,000 jobs and generating \$56.9 million in state tax revenues. These expenditures have become especially important to rural areas where they now exceed the sales value of the state's top individual agricultural commodities.

Funded primarily by the sale of state personalized license plates, WDFW's Watchable Wildlife Program launched the following initiatives in the 1999-01 Biennium:

- **Wildlife Area Review:** All WDFW Wildlife Areas were reviewed for their wildlife viewing potential in 2000 and information was posted on the WDFW Web page at [www.wa.gov/wdfw](http://www.wa.gov/wdfw) about what wildlife species can be found in each area. Two wildlife viewing sites were identified for additional development, using \$200,000 in capital funding approved by the Legislature. Sites chosen include the Fir Island Farm section of the Skagit Wildlife Area (enlarged parking area and fence) and Northrup Canyon in Grant County (trail and parking area), a joint project with State Parks.
- **Visitor Surveys:** Two surveys were conducted by program staff to help determine statewide in-

terest in wildlife viewing opportunities offered by WDFW and local communities. A telephone survey commissioned by the program in February 2000 found that 41% of those participating had made a trip to view wildlife within the previous year. A separate survey conducted by program staff at state wildlife fairs found that 69% of respondents were female, predominantly college graduates 45 to 55 years old, who spent an average of \$153 per trip.

- **WildWatchCam:** The program used donated high-technology surveillance cameras to bring live views of animals in their natural habitat to thousands of people via the Internet. The website for the hugely popular EagleCam, which featured eaglets emerging from their eggs in real time, received over 500,000 visits since it went on line in May 2001. It also generated \$1,165 in donations from around the country and thousands of complimentary e-mail messages from viewers. The BatCam focused on a Spokane-area maternal colony of Townsend's big-eared bats in an abandoned, rural cabin. Materials and labor were donated to run power and phone lines to this remote site. SalmonCam was installed at the Issaquah Salmon Hatchery.
- **Partnerships:** Joining with the Department of Tourism and other state agencies, Watchable Wildlife staff helped to develop wildlife viewing opportunities as part of the Lewis and Clark Bicentennial operations. Staff also worked with the local organizations that make up the Coulee Corridor group to develop a scenic byway plan for Highways 17 and 155 from Othello to Coulee Dam to stimulate economic development in the area. A grant from the Department of Transportation funded participation by a Watchable Wildlife staff member, who helped to identify fish and wildlife viewing opportunities.



*Captured live on WDFW's EagleCam, this pair of nesting eagles prompted more than 500,000 visits to the agency's website.*

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## WDFW LANDS

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The WDFW Lands Division manages a statewide network of 802,031 acres of land and water that provide habitat for Washington's fish and wildlife while also providing a range of fishing, hunting and other wildlife-related recreational opportunities compatible with that purpose. Of that total acreage, WDFW owns 491,630 acres and manages 310,401 more for such agencies as the U.S. Bureau of Reclamation,

the U.S. Fish and Wildlife Service and the state Department of Natural Resources.

Most of these lands are part of designated Wildlife Areas, which are scattered throughout the state in almost every county. Management of these areas is designed to achieve two primary goals:

- Provide habitat for endangered and threatened species, big game, waterfowl and other birds, upland game, fish and invertebrates.
- Provide other compatible recreational uses, which include fishing, hunting, cycling, horseback riding, cross country skiing, rafting, rock climbing, hang gliding and numerous other outdoor activities. Public use of Wildlife Areas is extensive and diverse, approaching 3 million visits annually during the 1999-01 Biennium.

The WDFW Lands Division is divided into four sections: Wildlife Areas, Upland Wildlife Restoration, Public Access & Washington Conservation Corps, and Real Estate. Key issues during the 1999-01 Biennium included developing road inventory/assessment plans on agency lands as required by the new Forest and Fish rules, working with landowners on habitat restoration on private agricultural lands through the USDA Conservation Reserve Program, helping the Bonneville Power Administration meet its mitigation obligations by funding enhancement activities on WDFW lands, and attempting to meet basic maintenance needs at WDFW access sites.



*A WDFW wildlife manager surveys the Chief Joseph Wildlife Area in southeast Washington, a major elk calving area.*

## Wildlife Areas

WDFW lands in designated Wildlife Areas range in size from just a few acres to over 100,000 acres and are managed by a staff of 21 managers who provide on site protection, management, maintenance and enhancement of fish and wildlife resources and habitat.

A majority of these lands have been purchased since 1939 with federal Pittman/Robertson funds, although some have been acquired through mitigation agreements with local utility districts and the Bonneville Power Administration. Since 1991, more than 55,000 acres of critical habitat along with a number of public access sites have been acquired with state funds provided by the state Legislature through the Interagency Committee for Outdoor Recreation.

Management activities on Wildlife Areas include day-to-day maintenance responsibilities that consume the majority of any available funding. In recent years, WDFW has been forced to defer many of these activities – ranging from elk fencing to weed control – due to inadequate resources, in some cases tarnishing the agency's reputation as a good neighbor. In the 1999-01 Biennium, funding available for maintenance activities – either through mitigation agreements or from grants – was re-prioritized for state and federally listed species, primarily salmon, sage and sharptail grouse and pygmy rabbits.

Weed control accounted for approximately 20% of all operating expenditures for Wildlife Areas. Spartina, diffuse knapweed, Canadian thistle, purple loosestrife and other weeds threaten habitat for both fish and wildlife. State law and most counties in the state require that they be controlled.

A bright spot was that WDFW's efforts to control purple loosestrife showed clear signs of success during the biennium. Starting in the mid-1990s, WDFW became one of the first major landowners in the state to combine herbicides with bio-control (loosestrife eating insects) to control this potentially catastrophic noxious weed. The results of that effort were realized in the 1999-01 Biennium when monitoring revealed large scale die-offs of purple loose strife infestations in the Columbia Basin. This has provided effec-



## WILDLIFE AREA ACRES, LOCATION & DESCRIPTION

Wildlife Area	Acres	County/Location	First Acquisition	Description/Primary Use
Chief Joseph Sherman Creek Wooten	29,696 9,982 16,492	Asotin Ferry/Pend Oreille Columbia/Garfield	1962 1948 1941	The wildlife area is an outstanding chukar habitat, an elk winter range and a major elk calving area. The area is important for white-tailed deer and for mule deer fawning. These lands along the Tucannon River are historic wintering areas for game and receive year-round use by a variety of wildlife species.
Chelan	27,400	Chelan	1965	Chelan, Swakane and Entiat Wildlife Areas provide important winter range for mule deer and offer year round habitat for upland birds.
Columbia Basin Methow	181,212 29,568	Grant/Adams Okanogan	1952 1941	This area with its wetlands, coulees, and channeled scablands is managed primarily for waterfowl. The Methow Wildlife Area provides critical winter habitat for mule deer, white tailed deer and golden eagles.
Sinlahekin	14,034	Okanogan	1939	This area was purchased to provide habitat for mule deer, today the area is managed for a diversity of wildlife species.
Colockum	104,918	Chelan/Kittitas	1953	These lands were purchased primarily to provide wintering area for Rocky Mountain Elk, mule deer, and big horn sheep.
LT Murray Oak Creek	96,352 41,586	Kittitas Yakima/Kittitas	1966 1940	This Wildlife Area supports a large herd of Rocky Mountain Elk. This area provides critical winter range for populations of Rocky Mountain Elk, and California bighorn sheep.
Lake Terrell	2,289	Whatcom	1942	Lake Terrell is within a well- traveled portion of the Pacific flyway and attracts a diversity and abundance of waterfowl.
Skagit	13,000	Skagit/Snohomish	1948	The Skagit Delta is one of the major waterfowl wintering areas in the Pacific Flyway. A bird checklist for the area includes over 180 species.
Snoqualmie	2,031	King/Snohomish	1964	Close to the metropolitan area, this Wildlife Area provides the public with opportunities to hunt, fish, train hunting dogs, and watch wildlife.
S Puget Snd/Scatter Cr.	4,649	Pierce/Thurston	1966	The Scatter Creek with its unique short-grass prairie supports a wide variety of rare or uncommon plants, insects, birds and animals.
Klickitat	14,000	Klickitat	1948	Klickitat Wildlife Area is known for black tailed deer, Merriam's turkey, chukar, black bear, bighorn sheep, valley quail, bandtail pigeon and dove.
St. Helens	2,500	Cowlitz	1989	This property located on the Toutle River debris slide is managed for the elk which use the area for calving and rearing of young.
Olympic Swanson Lakes Sunnyside	3,527 19,000 11,050	Grays Harbor Lincoln Benton/Yakima	1952 1990 1947	This Wildlife Area encompasses several units which are managed primarily for elk and waterfowl. This BPA funded mitigation project is managed primarily for sharp-tailed grouse. This BPA mitigation project is managed primarily for wetland and riparian habitat and provides excellent nesting and winter habitat for waterfowl.
Scotch Creek Wells	15,500 8,447	Okanogan Douglas	1991 1968	This BPA funded mitigation project is managed primarily for sharp-tailed grouse. Douglas County PUD provides mitigation funding to manage this area primarily for upland birds and waterfowl.
Wenas	104,000	Yakima/Kittitas	1951	This BPA funded mitigation project is managed primarily for Rocky Mountain elk, mule deer, big horn sheep and sage grouse.
Cowlitz	13,940	Lewis	1991	Tacoma City Light provides mitigation funding for habitat management and recreation on lands adjacent to Mayfield and Riffe Lakes.
Shillapoo	1,550	Clark	1952	This BPA funded mitigation project is managed primarily for waterfowl and the associated wetland and riparian habitat.
Sagebrush Flat	8,616	Douglas	1991	This BPA funded mitigation project is managed primarily for the protection of the pygmy rabbit and other shrub-steppe dependant species.
<b>TOTAL</b>	<b>775,339</b>			

Wildlife Areas are managed for all of Washington's fish, wildlife, reptiles, amphibians, invertebrates and marine mammals. *September 2001*

tive protection for wetland-dependent wildlife, resulting in improved habitat for fish and wildlife and greater recreational opportunities.

The summer of 2000 was an unusual year for forest fires in eastern Washington, and WDFW lands were no exception. Approximately 7,000 acres of land burned on five Wildlife Areas in eastern Washington destroying habitat, critical big game winter range and fencing. The Legislature provided \$645,000 to cover fire suppression costs and help with emergency deer and elk feeding.

WDFW also responded to the need to address fish passage and sedimentation problems on Department lands, as required under the new "Fish and Forests" Rules. Approved by the 2000 Legislature, the new rules require all forest owners – including WDFW – to develop a statewide Road Management and Abandonment Plan by 2005 as a step toward addressing these issues. During the 1999-01 Biennium, WDFW began developing road inventory/assessment plans for Wildlife Areas and other Department lands, and also took action to correct a number of fish-passage barriers and fish screens where ESA listings required immediate attention. Approximately 10 of WDFW lands had been surveyed and problems corrected through this effort by the end of the 1999-01 Biennium.

Wildlife Area personnel participated with local landowners and other agencies in ten Coordinated Resource Management Planning (CRMP) efforts during the biennium. CRMPs help to address resource issues on multiple ownerships within a planning area through a consensus and information exchange process. WDFW remains committed to the use of CRMP as a way for neighbors to solve resource problems in a mutually acceptable manner.

### **Upland Wildlife Restoration**

WDFW's Upland Wildlife Restoration Project seeks agreements with private landowners throughout the state to improve habitat for wildlife by planting native grasses, trees and shrubs, and distributing information on the biological needs of various species. In some cases, these habitat agreements are combined with WDFW public access agreements, which provide landowners with free informational signs and better trespass compliance in exchange for allowing public access for hunting or fishing. More than 1,300

private and corporate landowners are enrolled in this program, representing 16% of the state's private lands, mostly in eastern Washington.

Financial support for the program, the largest of its type in the nation and a model for other states, comes primarily from the U.S. Fish and Wildlife Service, which contracted with WDFW for \$1.1 million in services during the 1999-01 Biennium. In addition, more than \$100,000 was donated by conservation-minded sports groups, including Pheasants Forever, National Wild Turkey Federation and the Rocky Mountain Elk Foundation.

Upland Restoration staff have used their local knowledge and contacts to increase the participation and understanding of the Conservation Reserve Program (CRP) administered by the Department of Agriculture. This federal program compensates farmers for taking acreage out of agricultural production in order to improve water and air quality, soil stability and wildlife habitat. During the 1999-01 Biennium WDFW staff helped approximately 1,000 landowners qualify for CRP by providing technical assistance and materials necessary to improve wildlife habitat.

The Environmental Development Goes Educational project (EDGE), created in 1991, gives high school students an opportunity to get involved in hands-on environmental restoration work. Sponsored by Future Farmers of America chapters, nearly 800 Washington students have participated in wildlife enhancement projects on private lands in the past ten years,



*Wenas Wildlife Area in Yakima and Kittitas counties is managed primarily for elk, mule deer, bighorn sheep and sage grouse.*

helping to forge links between landowners, sportsmen and wildlife. More than 70 students participated in the program during the biennium.

## Access Sites

The Department maintains 604 public recreational access sites statewide, which are visited by the public an estimated 13-15 million times each year. These sites provide public access to the lands and waters in every county in the state for fishing and hunting, along with a variety of other outdoor activities that include boating, rafting, camping, hiking, cycling, hang gliding and rock climbing.

WDFW access sites typically range from one to five acres with a few in excess of 100 acres. Most are limited to day use, although overnight camping is allowed in some areas. Development is generally limited to fencing, parking, signage, boat launches and toilet facilities. About 100 sites are operated through mitigation agreements with various public utilities, cooperative agreements with a county, city, or port district, or as a functional part of a Wildlife Area.

During the 1999-01 Biennium, the Department acquired one new water access site. This was a ten-acre site on Lake Kapowsin in Pierce County to provide public access to the lake's warmwater fishery.

Washington's continued population growth and increased recreational demand have made it impossible to adequately maintain all of these sites within the budget provided. Particularly in summer months when use is at its highest, the Department worked to

meet minimum maintenance requirements, such as cleaning and pumping toilets, picking up litter and meeting legal requirements for weed control. Many maintenance activities such as signing, fencing, gate repair, tree removal and boat ramp repair had to be deferred due to budget constraints.

The budget for WDFW's access sites totaled \$1.1 million in the 1999-01 Biennium, including \$101,936 from the state Wildlife Fund and \$800,096 in federal Dingell-Johnson funds. The remaining \$124,000 was generated through a \$10 use fee for the non-fishing and hunting public, approved by the 1998 Legislature. Together, these funds supported eight-full time staff, two temporary seasonal positions and goods and services necessary to maintain more than 600 sites statewide.

## Washington Conservation Corps

The Washington State Legislature created the Washington Conservation Corps (WCC) in 1983 to give young adults valuable work experience while lending muscle to environmental projects throughout the state. Administered by WDFW, the program employed 98 young adults age 18 to 25 during the 1999-01 Biennium, putting them to work repairing trails and wildlife-control fences, building footbridges, posting signs, planting trees, helping out at hatcheries and assisting with a variety of other activities.

Most WCC projects were focused on stewardship responsibilities on WDFW Wildlife Areas and recreational Water Access Area sites, along with habitat restoration and enhancement projects at Upland Wildlife Restoration Sites. Assigned to mobile crews at Department regional offices, corps members receive both on-the-job and classroom training to make them more employable upon completion of the 6-to-12 month program.

Starting in the second year of the biennium, WCC participants became eligible for AmeriCorps scholarships in the amount of \$4,725 after one year of service. This incentive greatly improved retention of corps members, a majority of whom remained in the program for a full year during the second year of the biennium.

## Real Estate Management

The Real Estate Services section of the Lands Division is responsible for acquisition, disposal and real



*Members of the Washington Conservation Corps build a rock jack fence on a WDFW Wildlife Area in eastern Washington.*

property management for WDFW's 801,630 acres of owned and controlled lands.

WDFW's real estate holdings include administrative offices, hatchery facilities, wildlife areas, shellfish beds and public fishing access areas. By statute, legal and administrative transactions involving WDFW land are conducted by authorization of the Fish and Wildlife Commission.

During the 1999-01 Biennium, Real Estate Services completed 70 acquisitions valued at \$12,865,018 and totaling 9,256 acres. These purchases addressed program needs ranging from access to public shellfish beds in Hood Canal to elk winter range in Columbia County.

Funding for these acquisitions was provided primarily by grants from Interagency Committee for Outdoor Recreation (Washington Wildlife and Recreation Program), accounting for \$10,252,888 of the total. A new area of focus was the purchase of 10 conservation easements, which provide 675 acres of permanent habitat protection on private land.

Real Estate Services also addressed three surplus properties through the sale of the Retsil Ferry Terminal to Kitsap County Transit, the exchange of the surplus Yakima Hatchery for Kittitas County elk habitat and the sale of the Lake Boran Access to the City of Newcastle for inclusion in their city park. By the end of the biennium, WDFW's real estate holdings totaled 491,630 acres of ownership and control of an additional 310,401 acres.

In managing WDFW's holdings, Real Estate Services addressed 18 easement and right-of-way requests from public and private entities and resolved two boundary conflicts through exchanges. Payments made to counties in lieu of property taxes were \$368,952 for Fiscal Year 2000 and \$373,472 for Fiscal Year 2001. Assessments paid to local governments were \$169,213 and \$168,545 respectively. Forty-one grazing leases covered 67,582 acres as of January 2001 providing for 9,297 animal units monthly. At the same time, 56 sharecrop agreements covered 11,224 acres. A timber sale was conducted on the Sherman Creek Wildlife area to address diseased timber and a gravel sale on the Yakima River provided for the restoration of an important riparian zone.

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## WILDLIFE SCIENCE

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Washington state is home to more than 50 hunted species and nearly 80 wildlife "species of concern" – those that are endangered, threatened, sensitive or candidates for protection listings. To protect and restore vulnerable populations and meet the Department's mandate to provide recreational opportunities, resource managers must understand each priority species' population status, habitat requirements and factors limiting their abundance.

The Wildlife Science Division within WDFW's Wildlife Program provides research expertise, technical information, data management and quantitative analysis for both hunted and non-hunted wildlife species throughout the state. The division employs 33 FTE staff who conduct field investigations into the ecological requirements, population status and habitat relationships of priority wildlife species and provide Geographic Information System (GIS) analysis and support for species management. They also maintain and update databases on endangered species and other wildlife, and offer technical expertise in wildlife veterinary medicine, including training on humane and safe handling techniques for potentially dangerous animals such as cougar, black bear and moose.

In addition to its services within the Department, the Wildlife Science Division maintains working relationships with the scientific community outside the agency and shares information with other natural resource agencies and professionals by producing reports and species management recommendations, publishing scientific papers and presenting seminars and workshops.

Total funding to the division during the 1999-01 Biennium was \$4.8 million, of which 43% was obtained through grants and contracts from federal agencies and other sources outside state government. State funding was generated by the sale of personalized license plates (26%), sale of hunting licenses (19%) and monies from the State General Fund (12%).

Key activities during the 1999-01 Biennium include:

- **Elk management study:** In April 2001, WDFW contracted with a group of elk experts to conduct an external review and analyze cur-

rent WDFW elk management practices, objectives and strategies. The panel was asked to 1) investigate the population impacts of selecting various post-hunt bull/cow ratios as management objectives, 2) evaluate the impacts of hunting during the rut, 3) explore the impacts of late season elk hunts, 4) consider the genetic consequences of managing for various post-hunt bull/cow ratios, 5) address appropriate levels of antlerless harvest, and 6) assess current data collection techniques. The panel of experts, led by Dr. Jim Peek of the University of Idaho, is made up of world-renowned scientists from University of Idaho, University of Montana, University of Alberta, and Northwest Fisheries Science Center in Seattle.

- **Game species applied research:** Research focused on black bear population dynamics, sharp-tailed and sage grouse habitat ecology, and mule deer population dynamics in eastern Washington. All these projects were funded 75



*Dr. Briggs Hall, WDFW veterinarian, fits a cougar with a radio collar prior to its release.*

percent with federal Pittman-Robertson funds and 25 percent with State Fund-Wildlife monies from the sale of hunting and fishing licenses. Fieldwork for the black bear and sage and sharp-tailed grouse studies ended in 2000, followed by data analysis and report writing in 2001. The grouse studies found that habitat loss and fragmentation were significant factors affecting population dynamics of sage and sharp-tailed grouse. The results from the black bear study indicated that bear population dynamics were significantly related to habitat quality and levels of human disturbance.

- **Wildlife disease surveillance:** As public awareness and concern grew about chronic wasting disease in deer and elk, WDFW stepped up its surveillance for this condition. During the 1999-01 biennium WDFW secured funding to increase sampling of several deer and elk herds throughout the state and provide assurance that Washington deer and elk populations are free of the condition. WDFW also continued annual disease and parasite testing of elk herds that utilize winter feeding stations. The purpose of the annual sampling is to detect the presence of disease which could pose a threat to domestic livestock utilizing similar range habitats.
- **Cougar research:** In the winter of 2000-01, WDFW completed preparation for the first field season of Project CAT (Cougars and Teaching), a study of cougar behavior in Kittitas Valley that includes a K-12 science curriculum. Work included initial curriculum development to identify questions and problems students can investigate and data they can collect for a field study beginning in 2002.
- **Mule deer:** A cooperative study was initiated in 2000 to investigate the possible declining status of mule deer in eastern Washington. Major cooperators in the study include the U.S. Forest Service, U.S. Fish and Wildlife Service, Chelan PUD, Washington State University, University of Washington, and the Inland Northwest Wildlife Council. Over the past year, 164 radio-telemetry collars were placed upon adult female mule deer. The physical condition and reproductive status of captured deer was assessed using ultrasound technology.
- **Marine mammals:** Research by the division's Marine Mammal Investigations unit during 2000-

2001 focused on marine mammal interactions with endangered salmonids and environmental contaminant effects on resident species populations. Research included collaborative efforts with the National Marine Fisheries Service, U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife, Department of Fisheries and Oceans-Canada, University of Washington and the North Pacific Universities Marine Mammal Research Consortium.

- **Caspian terns:** In collaboration with Oregon State University and Real Time Research (Bend, Ore.), WDFW anchored a small barge in Tacoma's Commencement Bay to assess whether such vessels could attract nesting Caspian terns as a means of collecting food-habit data in other locations. The project was successful in attracting nesting terns, providing extensive food habits data which can be used in future management of the species.
- **Wildlife genetics:** In 2001, WDFW initiated a new wildlife conservation genetics section for black-tailed deer, elk, black bear, pygmy rabbits and sharp-tailed grouse. Activities included laboratory operations, data analysis and report preparation. Funding for these efforts came from a variety of outside contracts. Baseline conservation genetics work on the pygmy rabbit population in Washington was completed in the summer of 2001.
- **Web applications:** The division provided Department constituents with greater access to data on hunting permit selection and raffle results. Web applications were developed to allow permit applicants to discover the status of their permit drawing via the Internet. Hunting raffle results were also posted on the web.
- **Shrub-steppe mapping:** An inventory of shrub-steppe habitat was completed for eastern Washington, using satellite imagery and image-processing techniques. The mapping effort was performed in collaboration with shrub-steppe research projects conducted over the past several years.

- **Species database expansion:** Databases were expanded and edited on spotted owls, marbled murrelets, reptiles and amphibians, raptors and herons. In addition, the Wildlife Heritage database was increased.
- **Cooperative data sharing:** In early 2001, the Wildlife Science division became an active participant in the newly formed Washington State Remote Sensing Consortium (WARSC), a forum of organizations sharing the cost of acquiring remotely-sensed data, such as satellite imagery and digital ortho-imagery. In the summer of 2001, the WARSC was successful in implementing its first data acquisition: year-2000 satellite imagery for the entire state.

## Research Publications

The solution to many wildlife management problems begins with applied research. Below are some of the peer-reviewed publications written by members of the Wildlife Science Division on specific research topics during the 1999-01 Biennium. All are accessible on the WDFW website at [http://www.wa.gov/wdfw/science/scn\\_papers/index.html](http://www.wa.gov/wdfw/science/scn_papers/index.html)

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Koehler, G.M., P.B. Hall, M.H. Norton, and D.J. Pierce. (2001) Implant versus collar transmitter use on black bears. Wildlife Society Bulletin. 29(2):600-605.

Schroeder, M.A., D.W. Hays, M. Murphy, and D.J. Pierce. 2000. Changes in the distribution and abundance of Columbian sharp-tailed grouse in Washington. Northwestern Naturalist 81:95-103.

Schroeder, M.A., D.W. Hays, M.F. Livingston, L.E. Stream, J.E. Jacobson, and D.J. Pierce. 2000. Changes in the distribution and abundance of sage grouse in Washington. Northwestern Naturalist 81:104-112.

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Watson, J.W., D.W. Hays, and D.J. Pierce. 1999. Efficacy of northern goshawk broadcast surveys in Washington State. Journal of Wildlife Management. 63:98-106.

Jacobson, J.E. and M.C. Snyder. 2000. Shrubsteppe mapping of eastern Washington using LandSat satellite thematic mapper data. Final Report. Washington Department of Fish and Wildlife. Olympia, WA. 35p. ■